

REMARKS/ARGUMENTS

I. Summary of the Office Action

Claims 1-15 were pending in the above-identified application. With this response, claims 1, 6, and 11 are amended, and claim 15 is canceled. Claims 16-20 have been newly added. No new matter is added by the amendments. Reconsideration is requested.

II. Objection of the Drawings

The drawings were objected to under 37 C.F.R. § 1.83(a). With this response, a new Figure 4 is being added, along with appropriate changes to the specification. In new Figure 4, a second muff and a second ear plug are represented, with a separate channel, modulator, demodulator, and transducer from the first muff and first ear plug, sharing the use of an oscillator with the first muff. No new matter has been entered. Accordingly, the objection should be withdrawn.

III. Objection of the Claims

Claim 11 has been amended to replace "light signals" with --light signal--. Accordingly, the objection should be withdrawn.

IV. Rejection of the Claims over Reddeman et al.

(1) Claims 1, 11-12, and 15 were rejected under 35 U.S.C. § 102 as being anticipated by United States Patent No. 5,073,947 to Reddemann et al. ("Reddemann"). Applicants respectfully traverse the rejection.

In the specification for the present application, the first stated benefit is that "the circuitry in the ear-plug requires no battery and can operate at low power levels" (p. 2, ll. 1-2). Additionally, the specification states that "[w]ith low impedance, transducer 146 effectively utilizes the power received from PV cell 112. The impedance is preferably on the order of 50 ohms rather than a more common 500 ohm" (p. 3, ll. 29-31).

This feature is now reflected in the claims as follows:

"an ear-plug assembly including an optical receiver for receiving the transmitted optical signals, a transducer, and a passive circuit which transfers information from the optical signals to the

transducer for providing acoustic signals representative of the acoustic signals received by the muff, the ear-plug assembly not including a battery” (claim 1).

“an ear-plug with a detector receiving the light signal and the energy in the light; and converting the optical signal to produce acoustic signals with a transducer without the use of a power source for operation of the ear-plug” (claim 11).

Reddemann does not disclose an ear-plug assembly without a battery. Rather, Reddemann specifically discloses a battery source to power the amplification of the acoustic signal in the earplug-receiver: “The receiving signals are boosted in the amplification piece 7 and demodulated. The electroacoustic transformer or earphone 8 transforms the electric auditory signals into audible sound vibrations. A battery as an energy source supplies the electronic elements 6, 7, 8, with electrical energy.” (Col. 3, ll. 20-25).

Further, the receiver in Reddemann is “provided as an infrared sensitive photodiode” (col. 3, lines 12-13).

At no point does Reddemann teach or suggest either (a) the implementation of a photovoltaic cell to provide energy to the earplug-receiver, or (b) the combination of passive circuitry with a low-impedance transducer to minimize power use by the device, or (c) the combination of (a) and (b) to eliminate the need for a “battery as an energy source” (col. 3 lines 23-24.)

For the forgoing reasons, Reddemann does not anticipate independent claims 1 and 11 as amended and those claims dependent thereon.

(2) Claims 2-4 were rejected under 35 U.S.C. § 103(a), as being obvious over United States Patent No. 5,073,947 to Reddemann et al. (“Reddemann”) in view of Ramaswami et al. *Optical Networks: A Practical Perspective* (“Ramaswami”). Applicants respectfully traverse the rejection.

Ramaswami (pp.141-143) was cited in the Office Action for the use of semiconductor light-emitting diodes (LEDs) to transmit optical data for communications applications. Reddemann in view of Ramaswami does not teach or suggest “an ear-plug assembly including an optical receiver for receiving the transmitted optical signals and a passive circuit which transfers

the optical information to a transducer for providing acoustic signals representative of the audio signals received by the muff, without the use of a battery” (claim 1).

For the forgoing reasons, Reddemann in view of Ramaswami does not render obvious any of claims 2-4.

(3) Claims 5-10 and 14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Reddemann. Applicants respectfully traverse the rejection.

Claims 5-10 and 14 are dependent to claims 1 and 11. As described above in (1), Reddemann does not teach or suggest the elimination of a battery in the ear-plug assembly through selection of different system components.

Regarding these claims, the examiner is effectively providing “official notice” of certain matters. Applicants do not necessarily agree with the examiner’s use of official notice (without saying so), but this matter is moot because Reddemann does not teach or suggest the elements of claims 1 and 11.

(4) Claim 13 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Reddemann in view of United States Application Publication No. US2002/0030871 A1 to Anderson et al. (“Anderson”). Applicants respectfully traverse the rejection.

Anderson was cited for use of an infrared (IR) system which includes pulse width modulation (PWM) and demodulation. Anderson does say that one can use smaller batteries, but Anderson does not teach or suggest doing without a battery in the manner set out in claims 1 and 11.

For the forgoing reasons, Reddemann in view of Anderson does not render obvious claim 13.

The other new claims are dependent claims and should be allowable at least for the same reasons as the claims from which they depend.

V. Miscellaneous

New independent claim 17 includes a circuit for transferring the optical information as electrical signals “without an additional power source” and a transducer for receiving the electrical signal and for providing acoustic signals representative of the acoustic signals received by the muff “without an additional power source.” For the reasons stated above, none of the cited references discloses a system as claimed in claim 17.

It is submitted that the claims as amended are in condition for allowance. A favorable notice to this effect is respectfully requested.

No fees are believed to be due with this response. However, please charge any fees or credit any overpayments in connection with this matter to Deposit Account No. 08-0219.

Respectfully submitted,

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